A New Genus of Pseudoscorpions Based upon *Atemnus hirsutus*[1]

(Pseudoscorpionida: Chernetidae)

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The species *Atemnus hirsutus* was described by N. Banks in 1914 on the basis of a single individual "found 10 feet from ocean" at Laguna Beach, California. Evidently, no further specimens have been discovered, and the species has remained an enigma ever since. Beier (1932) and Roewer (1937) overlooked it completely in their worldwide reviews of the pseudoscorpions, and Hoff (1958, p. 22) only noted that "From Banks' figure, the species probably belongs to an undescribed genus in the Lamprochernetinae." Through the courtesy of Dr. H. Levi, I have borrowed the mounted holotype from the Museum of Comparative Zoology, Harvard University. I have remounted it and reexamined it in detail, and find that it belongs to an undescribed genus of the family Chernetidae.

Mucrochernes Muchmore, new genus

DIAGNOSIS.—(Based upon female only.) Surfaces generally smooth, but carapace granulate laterally and posteriorly, and palpal segments each with a few granules. Setae generally long, thin and tapering to fine point, many with single, small, sharp spinule at about the middle of the shaft. Carapace a little longer than broad; with two transverse furrows and two distinct eye spots; covered with about 200 vestitural setae. Tergites and sternites, except 11th, divided; with many setae arranged in one, two or three irregular rows; sternites 4, 5 and 6 with numerous small slit sensilla; pleural and interscutal membranes densely papillate; anterior genital operculum of female with about 45 acuminate setae broadly scattered over surface. Spermathecae of female apparently consisting of two delicate, lateral tubes of moderate length and barely enlarged at ends. Genital features of male unknown. Cheliceral palm with five setae, all long and simple; flagellum of four setae, all finely denticulate along anterior margins; galea with five branches emerging from common base, each branch with 2 to 4 rami. Palps fairly heavy; chelal hand (female) very broad at base; fingers with accessory teeth; venom apparatus well developed only in movable finger, vestigial in fixed finger; trichobothrium *st* near middle of movable finger, closer to *t* than to *sb*; *ist* at same level as *est*, distal to middle of fixed finger, *esb*, *eb*, *isb* and *ib* closely grouped at base of finger. Legs monotarsate, moderately slender; tibia IV with tactile seta far distad (also on III); tarsus IV with tactile seta just distad of middle (also on III) and prominent slit sensillum close to base (also on I, II, III); subterminal tarsal setae curved, acuminate; claws simple.

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TYPE SPECIES.—*Atemnus hirsutus* Banks, 1914.

DISTRIBUTION.—Known only from Laguna Beach, California.

REMARKS.—This genus is a member of the family Chernetidae by virtue of the monotarsate legs, the occurrence of a well developed venom apparatus in the movable chelal finger only, the accessory teeth on the chelal fingers, and the presence of a prominent, longitudinally oriented, slit sensillum basally on each pedal tarsus.

The relationship of *Mucrochernes* to other genera in the family is obscure because of the unique nature of the vestitural setae. Some other genera, such as *Dasychernes* Chamberlin, have large numbers of setae, but no other pseudoscorpion has been reported to have setae similar in shape to those of *Mucrochernes*. In fact, all other known chernetids have at least some setae which are denticulate or clavate at the tips, while those of *Mucrochernes* are, without exception, simple at the tips. On the basis of this and other features, the present genus does not fall naturally into any of the subfamilies of Chernetidae as presently formulated. It is possible that reevaluation of these groups on the basis of a broader constellation of characters will reveal close relatives of *Mucrochernes*.

MUCROCHERNES HIRSUTUS (Banks), new combination

(Figs. 1–6)

Atemnus hirsutus Banks, 1914, p. 203.
Genus? *hirsutus*, Hoff, 1958, p. 22.

MATERIAL.—Holotype female (WM 2456.01001), "found 10 ft. from ocean. No trees near," at Laguna Beach, Orange County, California (no date or collector indicated on slide, though Banks states that the specimen was sent by Prof. Hilton).

Because the original description given by Banks is inaccurate in some details and generally not sufficient to define the species, the following more complete description is presented.

FEMALE.—All parts rather lightly sclerotized and light yellowish. Carapace slightly longer than broad, with two transverse furrows and two large, distinct eye spots; surface nearly smooth medially, but weakly granulate on sides and posteriorly; covered with more than 200 setae. Setae on carapace, as well as on remainder of animal, different from those of other pseudoscorpions—all long, thin and completely simple at tips, but often with single, small, sharp spinule about halfway along length of shaft (Fig. 1).

Abdomen twice as long as broad; tergites and sternites, except 11th, divided, surfaces very finely granulate; pleural membranes and interscutal surfaces densely papillate. Tergal chaetotaxy 26:29:28:39:51:51:57:60:54:53:43:2; setae in single marginal row on tergites 1 to 3, but in irregular double or triple rows on tergites

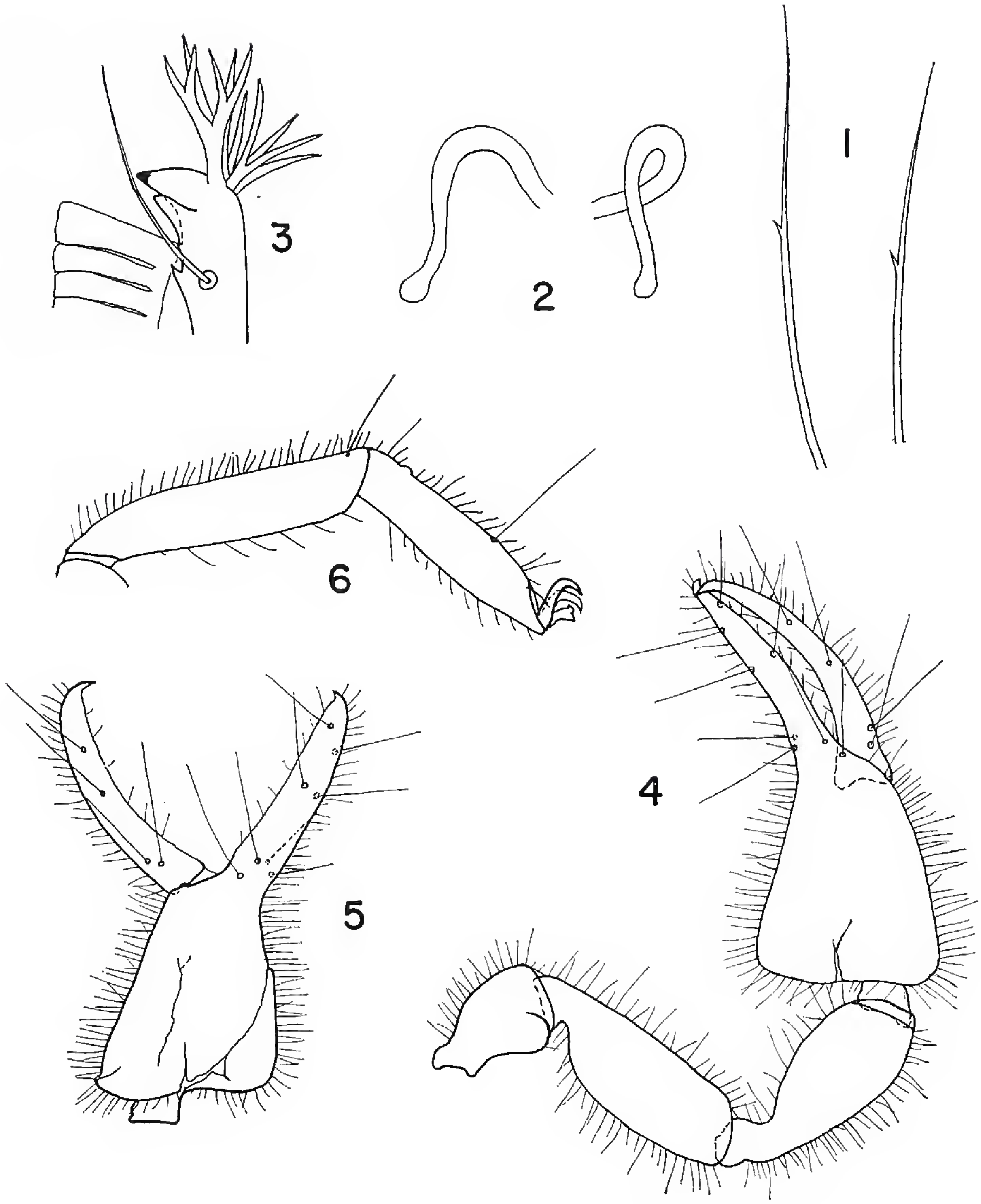

Fig. 1–6. *Mucrochernes hirsutus* (Banks), holotype female. Fig. 1. Vestitural setae with lateral spinules. Fig. 2. Spermathecae. Fig. 3. Tip of movable finger of chelicera, showing complex galea. Fig. 4. Dorsal view of right palp (chela in dorsolateral aspect and with crack in hand). Fig. 5. Lateral view of left chela (hand broken). Fig. 6. Tibia and tarsus of leg IV, showing tactile setae and tarsal sensillum.

4 to 11. Sternal chaetotaxy 43:(1)22(2):(3)14(3):64:68:50:49:48:47:36:2; the setae in double or triple rows on sternites 5 to 11. Sternites 4, 5 and 6 with numerous small, slit sensilla scattered over surfaces (each sternal half with about 40 on 4, about 85 on 5, and about 75 on 6), other sternites with few such sense organs (each half with about 12 on 3, only 2 on 7, 1 on 8, etc.). Anterior genital

operculum with a broad field of 43 small setae; posterior operculum with irregular, marginal row of 22 setae of similar size. Setae on spiracular plates simple. Spermathecae difficult to observe but appear to consist of two thinwalled lateral tubes, barely enlarged at ends (Fig. 2). Coxal area generally typical; all coxae bearing numerous, apparently simple setae.

Chelicera generally typical of the family, about one-third as long as carapace. Palm with five setae, all relatively long and simple. Fixed finger with three tiny, subterminal denticles and five teeth of decreasing size along the margin. Movable finger (Fig. 3) with distinct subapical lobe and one medium sized tooth just proximad of this. Galea composed of five branches arising from common base, each branch with two or four rami. Flagellum of four setae, all finely denticulate along anterior margins. Serrula exterior with 19 blades; serrula interior of six dentate lobes and basal velum.

Palp essentially as illustrated by Banks (1914, p. 203), though in the copy of the Journal available to me, the lateral outline of the tibia is incomplete. Remounted palp (chelal hands slightly broken by original, unsupported cover glass) as in Fig. 4. Surfaces smooth, except for a few small granules on flexor surfaces of trochanter, femur, and tibia; covered with numerous setae, mostly simple but some with spinules on shafts. Trichobothria of chela as in Fig. 5. Chelal fingers slightly gaping; fixed finger with 63 low, strongly cusped, marginal teeth, and five internal and eight external accessory teeth; movable finger with 59 similar marginal teeth, and five internal and seven external accessory teeth. Venom apparatus well developed in movable finger, with nodus ramosus just proximad of trichobothrium *t*; fixed finger without specialized venedens, but with small, poorly preserved venom duct. Trochanter 1.7, femur 3.1, tibia 2.65, and chela about 5.2 times as long as broad; hand 1.25 times as long as deep; movable finger 1.17 times as long as hand.

Legs typical in form, rather slender; leg IV with entire femur 4.25, tibia 5.1 and tarsus 4.35 times as long as deep. Tactile setae on tibia 0.93 and on tarsus 0.62 the length of segment from proximal end (Fig. 6). Large, prominent slit sensillum at proximal fifth of outer margin of segment. Subterminal tarsal setae curved, simple.

MALE.—Unknown.

MEASUREMENTS (mm).—Body length 3.06. Carapace 0.99 long, posterior breadth 0.89. Chelicera 0.36 long by 0.185 broad; movable finger 0.295 long. Palpal trochanter 0.54 by 0.32; femur 0.985 by 0.32; tibia 0.925 by 0.35; chela (without pedicel) 1.725 by 0.33; hand (without pedicel) 0.79 by 0.63; movable finger 0.925 long. Leg I: basifemur 0.25 by 0.17; telofemur 0.48 by 0.15; tibia 0.41 by 0.12; tarsus 0.43 by 0.095. Leg IV: entire femur 0.85 long; basifemur 0.30 by 0.20; telofemur 0.63 by 0.20; tibia 0.665 by 0.13; tarsus 0.52 by 0.12.

REMARKS.—There are two inaccuracies in Banks' description of the species which deserve some comment.

1) As mentioned above, and as observed by Banks, all setae on the animal are simple at the tips. However, probably because of insufficient magnification, Banks failed to notice the small spinules on the shafts of many of the setae. It is impossible to determine how many setae actually possess this feature because the spinule is usually obscured

by the shaft of the seta unless the seta is positioned so that the spinule extends out to one side.

2) It is difficult to understand why Banks recorded "mandible . . . with a short stylet," when the cheliceral galea is, in fact, large and multiply branched. It is conceivable, however, that one of the chelicerae, which seems to have been treated differently from the other, might have appeared to have a simple galea when viewed in a certain position under low magnification.

It is of special interest to note the occurrence of a large, prominent, slit sensillum basally on the outer surface of each pedal tarsus. The slit is oriented along the long axis of the segment and opens across the surface of a rounded elevation. In lateral view, as the legs are usually oriented, the organ is seen as a distinct, curved bump on the tarsal surface. This structure apparently was first noted by Chamberlin (1924), who called it a "dome-like 'sense-spot' "; later (1938, etc.) he referred to it as a "sense dome." Oddly, it is not mentioned at all in Chamberlin's large monograph "The arachnid order Chelonethida" (1931). Vachon (1945) observed that he had found this "organe tarsal" in representatives of all three subfamilies of the Chernetidae but in no other family, and he suggested that it is a good diagnostic character of the family Chernetidae. Unaccountably, then, Vachon did not include this character in his revised diagnosis of the Chernetidae (1951, p. 171), though he did mention it again two paragraphs beyond. My own experience agrees with that of Vachon and I concur that these slit sensilla are unique to the Chernetidae, the diagnostic features of which can be listed as follows: all legs monotarsate; venom apparatus well developed in movable finger of chela, less well developed or absent in fixed finger; fingers of chela usually with accessory teeth external and internal to the marginal row; tarsus of each leg with a prominent slit sensillum on the outer surface proximad of the middle of the segment.

It is to be hoped that the foregoing will stimulate enough interest in this remarkable pseudoscorpion to result in the collection of additional specimens of the same or related species.

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COLLECTION DONATED

Chris Parrish Scorpion Collection Donated to California Academy of Sciences.—Mr. Chris Parrish of La Mesa, California, has recently donated his collection of scorpions and other arthropods to the Department of Entomology, California Academy of Sciences. This collection, consisting of 3,784 specimens (plus a collection of diplocentrid scorpions out on loan for study) is important and valuable since it contains series of scorpions both from the mainland of Baja California, Mexico and the islands of the Gulf of California. The majority of the Mexican collections were made on expeditions organized by Dr. George E. Lindsay, Director of the California Academy of Sciences.

The Parrish collection contains 2,241 scorpions (plus the diplocentrid scorpions) including seven holotypes and two allotypes described by Dr. Herbert L. Stahnke (holotype female, *Bioculus aguajensis*; holotype female, allotype male, *B. belvederi*; holotype female, *B. danzantiensis*; holotype female, *B. lindsayi*; holotype female, *B. luteus*; holotype female, *B. parraensis*; holotype male, allotype female, *B. parrishi*), 1,399 specimens from Mexico, and 833 from the western United States. Most of these specimens were collected by non-ultra-violet detection methods. They will complement the extensive series of scorpions which Dr. Stanley C. Williams, who is monographing the scorpions of Baja California, has collected and donated to the Academy. The collection also contains 36 Uropygi and Amblypygi, 42 Solpugida, 61 Chilopoda, 50 Diplopoda, 128 Opiliones, 74 Chelonethida, 599 Araneida, 1 Onychophora, 276 Acarina, and 266 Insecta.—PAUL H. ARNAUD, JR., *California Academy of Sciences, San Francisco, 94118.*